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LOGISTICAL SUPPORT OF AIRLAND OPERATIONS:
MYTH OR MAGIC

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A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

by

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B.S., University of Alabama, Tuscaloosa, Alabama, 1976

Fort Leavenworth, Kansas
1992

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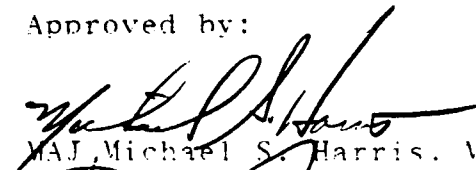
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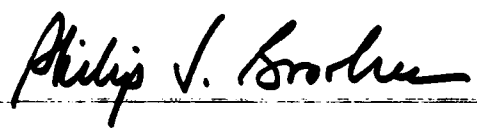
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ABSTRACT

LOGISTICAL SUPPORT OF AIRLAND OPERATIONS: MYTH OR MAGIC by MAJ Michael H. Cody, USA. 97 pages.

This study analyzes the concept being developed to enhance the existing keystone Army warfighting doctrine. The intent of the analysis is to identify the logistics requirements for supporting the concept. These logistics requirements are compared to the capabilities created by the emerging logistical doctrine designed to support the new concept.

The study compares the requirements of the concept to the logistics capabilities created to support it. An assessment of how well the logistics capabilities meet the logistical requirements of the concept is made. The analysis and assessment is by the logistical functional areas described in Chapter 4 of FM 100-5, Operations. Two areas have been added to those identified in FM 100-5. The study also includes the areas of command and control and mobility as essential elements of logistical operations at corps level and below.

The study concludes with an identification of the shortfalls in logistics capabilities and possible reasons for their existence. Three areas for possible further study are also identified.

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CHAPTER I

INTRODUCTION

The military must not see themselves, as all too frequently they do, as an old order defending civilized values against a revolutionary threat: people, as it were, in an ocean liner peering uneasily out through the portholes at an increasingly stormy sea outside. They should see themselves as intelligent surf riders spotting the essential currents on which to ride in a sea which is certainly disturbed and by no means friendly but on which, if they are skilful enough, they will survive.'

Michael Howard

Over the past twenty years, the Department of Defense, and the Army in particular, has attempted to be the intelligent surf rider described by Michael Howard. About the time that Michael Howard's acceptance speech appeared in the March 1974 issue of the "Journal of the Royal United Services Institute for Defense Studies," the Army was "spotting the essential currents on which to ride." The assessment of the Army's role in achieving the nation's goals and objectives, as well as its ability to protect its vital interests, launched the development of what has become AirLand Battle Doctrine.

The world, as it was viewed then, was on the verge of

Michael Howard, "Military Science in an Age of Peace," in *Introduction to Military Theory: Syllabus/ Book of Reading*. (Fort Leavenworth: Combat Studies Institute, U.S. Army Command and General Staff College, 1991), 238.

nuclear destruction. Imperial communism was at its strongest, and the Warsaw Pact had the ability to not only wage war of mass destruction (both conventionally and non-conventionally): but they had demonstrated the willingness to export their capability to other nations. This massive war machine was the predominant threat to the United States and its allies. The most likely battlefield, despite the strategic nuclear threat, was Central Europe.

Throughout the 70s and 80s the Army postured itself to fight in Europe, against a highly mobile force that had numerical superiority in men and equipment. AirLand Battle doctrine has served as the blueprint which guided the modernization of the Army's equipment, the development of its tactics, and the training of its soldiers.

In his 1992 "State of the Union" address, President Bush described the changes that have occurred in world politics as being of "Biblical Proportions." The end of the cold war, and the demise of the Warsaw Pact, is quickly being overshadowed by the movement toward peace in the Middle East. Again, the Army has looked out upon the waters of our changing times and is attempting to, skillfully, adjust to them. The Army is currently developing a concept of warfighting that, if accepted, will broaden its existing doctrine. The concept, referred to as AirLand Operations, is envisioned to be able to accommodate the safeguarding of the nation's goals, interests, and objectives: these, being modified by the changing world

situation. These changes anticipate the emergence of conflicts of a more regional nature, as well as terrorist activities directed at seizing international attention.¹ Occurring simultaneously with the diminishing likelihood of global conflict, resulting from the demise of the Soviet Union and its allies, is the growth in strength and power of almost all of the North Atlantic Treaty Organization (NATO) members. The synergistic effect of all of these factors has allowed our nation to redefine its role in NATO and as a member of the world community.

In light of these changes, the use of the Army as an instrument of national power demands two things. The first is, that our nation maintain the ability to quickly project military power globally. The second is, that the military can be tailored to meet any operational requirement. AirLand Operations is the concept designed to accommodate the operational requirements of a smaller, more flexible, strategically deployable force.

Problem Statement

This study focuses on the changes in logistics at the operational and tactical levels. These changes are being

¹U.S. Army TRADOC PAM 525-5, "AirLand Operations: A Concept for the Evolution of AirLand Battle for the Strategic Army of the 1990s and Beyond," (FT Monroe: U.S. Army Training and Doctrine Command, 1991), 3.

developed in response to the proposed modifications in the Army's keystone doctrine. The purpose of the study is to determine if the changes in logistical procedures and structure will accommodate the demands of combat operations, under the new concept.

Definitions

AirLand Operations- currently a concept that, if accepted, will become Army doctrine. It attempts to address the essential activities, requirements and capabilities the Army must fulfill to be an effective instrument of national power. It also seeks to define the roles and relationships that operations, at the tactical, operational and strategic levels will demand. These operations have four interrelated stages. The stages are: Preparation for operations, Setting conditions to achieve decisive results, Conducting operations to decisively achieve operational objectives, and Reconstitution.

AirLand Battle- The current Army doctrine found in FM 100-5, Operations. Its focus is the operational art involved in conducting modern warfare. It describes the nature of modern warfare as three dimensional; and as being comprised of actions occurring simultaneously on the ground.

in the air, and throughout the depth of the battlefield. It has also sought to describe the activities, requirements and capabilities needed to successfully win battles, engagements, major operations, and campaigns on the modern battlefield.

Distribution Point- A point at which supplies and/or ammunition obtained from supporting supply points by a division; or other unit, are broken down for distribution to subordinate units.

Low Intensity Conflict- A potential military confrontation between contending states or groups below conventional war and above the routine, peaceful competition among states.

Operational Art- The employment of military forces to attain strategic goals in a theater of war, or the theater of operations, through the design, organization, and conduct of campaigns and major operations.

Operational Sustainment- The logistical and support activities required to sustain campaigns and major operations within a theater of operations. Sustainment, in general is comprised of six functions. These are: sustain the soldier, arming, fueling, fixing, and moving, and protecting the force.

Operational Maneuver- Seeks a decisive impact on the conduct of a campaign. It attempts to gain advantage of position before battle, and to exploit tactical successes to achieve operational results.¹ It allows the commander the opportunity to attack selected elements of the enemy force; therefore, preventing them from interfering with his plan. Operational maneuver requires superior intelligence, the ability to shape or condition the battlefield at depth; and it demands they possess the agility to quickly exploit conditions.⁴

Supply Point Distribution- That method of distributing supplies in which the receiving unit is issued supplies at a supply point and moves the supplies in organic transportation.

Unit Distribution- That method of distributing supplies in which the receiving unit is issued supplies in its own area; the transportation being furnished by the issuing agency.

Basic Load- That amount of equipment required by a unit to sustain itself until resupply can be effected. The

¹FM 100-5, Operations (Washington, D.C.: Headquarters Department of the Army, 1986). 12.

⁴TRADOC PAM 525-5, AirLand Operations. 13.

basic load is not a fixed quantity; it may be altered as the situation dictates. The term applies to all classes of supply.

Center of Gravity- A concept that refers to the sources of strength or balance of an armed force. It is that characteristic, capability, or locality from which the force derives its freedom of action, physical strength, or will to fight.

Limitations

The recent operations in Southwest Asia exposed the Army to the requirements and difficulties expected in future operations. AirLand Operations deals with military operations that range from peacetime engagements, through hostilities short of war, to war and conclude with post-conflict hostilities. This, according to the School of Advanced Military Studies, is the Continuum of Military Operations. The war in Southwest Asia contained all of these elements. The lessons learned from this conflict are not yet available and may not become available before the research for this thesis ends.

Delimitations

(a) The AirLand Operations concept addresses the entire military operational continuum. This thesis will

deal with peacetime engagement and post-conflict activities only in a cursory manner. Preparation of a contingency Corps for deployment and its actual deployment in to a theater of operation will not be addressed in this study. It will look at requirements of a contingency corps after it has deployed to an immature theater of operation and has begun to prepare for war.

(b) Study of activities associated with post-war turmoil will be extremely limited.

(c) The study of the sustain the soldier function, as discussion in Chapter 4 of FM 100-5, will focus primarily on health services operation at Corps and Division levels and on the graves registration aspect of field services.

Significance of the Study

The October 1991 issue of *Military Review* contains an article by COL James R. McDonough, Director of the School of Advance Military Studies. COL McDonough is the driving force behind the writing of the new FM 100-5. Expected to be released in the spring of 1993, the new FM will turn the AirLand Operations concept into Army doctrine. In discussing the logistics aspects of the concept, COL McDonough states,

Theater-level logistics should be reexamined and addressed in greater depth in our evolving doctrine. A clarification of the terms and additional discussion may be required in such areas as a proposed move from decentralized to centralized logistics. Approaches that may solve theater-level issues may be unacceptable at the tactical level. It is clear, however, that particular emphasis should be placed on flexible, continuous, fully integrated logistics.

The logistical aspects of the AirLand Operations concept are clearly not settled. There is a great deal of time and room for discussion of the logistical implications of the new concept. This should lead the way for identifying the requirements derived from the concept, as well as, the most effective means to fulfill those requirements.

It is my intention that this study begin a systematic analysis of the logistical implications of the new concept. By so doing, we can move the discussion of the development of logistics doctrine from the political and emotional realm to a more rational and reasoned one. Without a push in this direction, the Army could establish a doctrine that is neither understood nor logistically supportable.

CHAPTER II

HISTORICAL REVIEW

Some of the greatest changes in the nature of war have not been the result of technological innovation at all. They have been the result of massive political, economic and social developments in the structure of society as a whole.¹

Michael Howard

The story of the evolution of Army doctrine into its current form is an interesting one, in its own right. Two of the key influences on the form doctrine has taken have been technology and the threats to American vital interests. Although technological advances have improved our ability to detect and engage an enemy force at distances greater than ever before. Our changing perceptions of who and where the enemy was, the perceived threat he posed to our national interests, as well as the capabilities he possessed, have had a far greater impact on the development of Army doctrine. These perceptions have served to set the limits on the resources made available to defend against the threats to our nation.

Although massive amounts of time, energy and money were spent to study the question of what improvements were needed, in what has come to be known as the Army's keystone

¹Howard, 238.

doctrine. little change occurred in Army doctrine between 1945 and 1973. These studies, along with the analysis of the lessons learned from WW II, Korea and Vietnam, did produce: however, considerable changes in the doctrine governing infantry, armor and aviation tactics. Much of what changed in these subordinate doctrines have coalesced to form the current AirLand Battle doctrine.

Post World War II: 1945 - 1950

Following the debut of the atomic bomb, few people believed that anyone could counter the American monopoly of atomic power. Even fewer people believed that any potential aggressor would risk total annihilation in a war that he could not possibly win. This perception led to a call for a reduction in the military force following WW II and little recognition of the utility of ground combat. Army tactics, equipment and organizations --along with the doctrine for their employment-- effectively remained that of World War II.⁶

Doctrine Through Korea and Vietnam.

The American Army took a beating during the early days

⁶Robert Doughty. *The Evolution of U.S. Army Tactical Doctrine, 1946-76.* Fort Leavenworth: Combat Studies Institute, U.S. Army Command and General Staff College. (August 1979): 2-6.

of Korea. The readiness of the soldiers and their equipment, as well as the quality of their training, were notoriously poor. The American expectation had been for global war in Europe, with its ensuing mobilization of people and equipment. The Army, and the nation, were ill prepared for limited warfare.

Throughout the Korean War years, the Army improved its ability to fight guerilla warfare. The doctrine of World War II had stressed offensive operations; and the Army found itself having to deal with defensive operations over large frontages. Infantry tactics, the use of artillery and tactical mobility improved to allow the development of outposts; or strong points that were defendable and provided the point from which offensive operations could be launched.

The Army ended the Korean War convinced that its basic doctrine had been proven as sound. Training bulletins published in 1953, and the studies of the war concluded in 1954, indicated that: "Korea had provided few items that could be described as lessons learned."⁷ Documentary evidence further indicates that the Army leadership believed that Korea had: "reaffirmed the soundness of US doctrine, tactics, techniques, organization and equipment."⁸ None of these had changed since World War II.

The first modification to Army doctrine occurred

⁷Ibid., 12.

⁸Ibid.

following the end of the Korean War. In 1955, the concept which supported what later became known as the Pentomic Division was released. The factors that influenced the development of the Pentomic Division and the nature of the battlefield on which it was to fight, were similar to those prompting the modification of AirLand Battle doctrine today. The most likely threat to American national interests and security was the rapidly modernizing Soviet Union. The Red Army not only had the largest conventional force in the world, but possessed the capability to devastate Europe with atomic weapons. An immediate product of the analysis of the Soviet military capability was the identification of three requirements for the US Army. These were: that we must be capable of fighting on a nuclear or a non-nuclear battlefield, that we must expect to fight outnumbered, and that we must maximize our combat power by maximizing our mobility: this must occur in conjunction with the use of combined arms operations. The latter two requirements prompted the battlefield to be described as "cellular" as opposed to "linear." It was also recognized that the Army needed to be able to rapidly deploy world-wide. Unfortunately, the doctrine of the Pentomic Division was short lived. Two factors caused this to be true. One was that the senior leadership of the Army believed that it was oriented against the least likely battlefield: comprised of massive retaliation and atomic devastation. The second was that its

fielding was accompanied by a massive reduction in force, driven by the administration's belief that large ground forces were no longer necessary.⁴

Almost as quickly as the nation changed presidential administrations, the Army changed its organization and doctrine. In 1960, the results of an Army study of the pentomic division revealed that several changes needed to be made to correct doctrinal flaws. Consistent with the policy of flexible response, the Army unveiled a new structure and a new doctrine in 1965. The new structure was referred to as the Reorganization Objectives Army Division (ROAD).

The doctrinal improvements over those that had accompanied the Pentomic Division were slight, at best. They reflected a desire of the senior leadership to emphasize different aspects of the battlefield and the nature of future conflicts. Carried over from the Pentomic Division was the concept that the Army had to be prepared to deploy globally. Under the ROAD concept, this meant that Army forces must be tailorable for operations in different terrain, against enemies other than the Soviet Union. Also carried over from the pentomic concept was that forces had to have the ability to fight on either a nuclear or non-nuclear battlefield. The ROAD concept stressed that the Army would more than likely fight on a non-nuclear battlefield, with the possibility of being required to transition to a nuclear one. The potential

⁴Ibid.. 19.

for the employment of nuclear weapons dictated that the battlefield would still be cellular in nature; and it required that tactical mobility, maneuverability, and survivability be increased. The non-linear battlefield also demanded that units had to be able to operate independently, or at least semi-independently, under a variety of conditions.¹⁰

Three structural changes under the ROAD concept, worthy of comment were: the establishment of three brigade headquarters instead of regimental or combat commands, the creation of a common division base organization (from which combined arms task forces could be created), and the establishment of a logistical command and the division support command.¹¹

1973 Arab-Israeli War To Active Defense.

The 1973 Middle East War was an eye opening experience for the senior leadership of the Army. The destructive potential of modern weapons and the violence of battle were greater than anything that had been seen before. As a result of this conflict, the U.S. military gained access to captured Soviet equipment for the first time. These factors combined with the realization that the "ever modernizing" Soviets had enhanced their combat power tremendously between 1965 and

¹⁰Ibid.

¹¹Ibid., 21.

1973. both in quantity and in the application of new technologies; and the fact that the Soviets demonstrated a willingness to intervene, in this particular regional conflict, prompted a re-evaluation of the national military strategy. The new strategy acknowledged that we possessed a limited capacity to repel aggression anywhere in the world. As a result, resistance had to be allocated in regions of the world according to a priority of US security interests.¹²

The new doctrine, termed "Active Defense" focused on the defense of NATO and emphasized armored warfare as well as emerging technology. It attempted to reconcile the political imperative of defending West Germany forward of the International German Border (IGB), with the facts of numerical inferiority and the Soviet's possession of the initiative.¹³ The basic elements of the doctrine included: committing all forces forward, while not retaining a reserve; forcing the enemy to commit his main attack echelons in the covering force area, well forward of the main battle area; massing against the enemies main attack; and creating the conditions for a favorable combat ratio by trading space for combat power.¹⁴ It was in this version of FM 100-5 that the term AirLand

¹²Paul H. Herbert. *Deciding What Has to Be Done: General William E. Depuy and the 1976 Edition of FM 100-5. Operations.* Fort Leavenworth: Combat Studies Institute. U.S. Army Command and General Staff College. (July 1988): 5.

¹³Ibid.. 9.

¹⁴Ibid.

Battle was first used. The chapter entitled AirLand Battle described the joint procedures that had been established for the coordination of Air Force and Army airspace management.¹⁶

AirLand Battle Doctrine.

The 1982 version of FM 100-5, and the 1986 edition still currently in use, set out to rectify the perceived problems with the doctrine of Active Defense and to place greater emphasis on the three dimensional nature of future warfare. The actual differences between the doctrines of Active Defense and AirLand Battle are very slight.

The major threat to U.S. national interests remained the Warsaw Pact. Our capacity to repel aggression everywhere in the world was still limited. The greatest priority for protecting our interests was still the defense of NATO, and we would still face an enemy superior in size.

What was different was that success on the future battlefield was said to demand aggressive action. The Army, according to the new doctrine, must take and maintain the initiative through offensive operations. The defense, which had been emphasized in the Active Defense doctrine, was viewed as a means to develop the situation so that the initiative could be gained. In addition to shifting the emphasis from defensive to offensive operations, the requirement for close

¹⁶Ibid.

integration/ coordination of the activities of Air Force and Army air assets, indirect fire assets, and air defense capability, with the activities of maneuver forces, was stressed. These were described as the components of the Air and Land battles; and thus, resulted the term AirLand Battle.

The concept of a nonlinear battlefield was expanded, under AirLand Battle. The enemy had to be engaged at the full range of all available weapon systems. Special Operations Forces (SOF) and long range Air Force assets were given the role of engaging enemy second echelon forces deep in the enemy rear. Intelligence assets were envisioned to be deployed to detect enemy first and second echelon forces as early as possible. Success in the deep fight would allow the first echelon forces to be isolated on the battlefield; and ground and air assets would be directed against them, in what was termed the close fight. Operations in the rear were described as being directed at maintaining the initiative by sustaining combat power forward, as well as protecting logistical assets. The threat to the rear area: by enemy SOF, guerrillas, and terrorists, made it an area of probable combat operations equal to the other two. The nonlinearity of the battlefield was drawn from the likelihood of combat operations rapidly shifting between these three areas, or occurring in all three simultaneously.

AirLand Operations Concept.

U.S. Army doctrine, over the last two decades, has dealt with the description of how to fight campaigns and battles. It has focused on the techniques required to fight either conventional or unconventional enemy forces on some future battlefield. In the past, doctrine has been confined to prescriptions for defeating an enemy on the field of battle. Doctrinal writers took a fairly fixed and pragmatic approach to this process. The influence of General Antonine, Baron De Jomini (1779-1869), has been the most predominate of any military theorist. Jomini's view of the purpose of any army, as a student of Napoleon, was simply to annihilate the enemy's army. He believed that the Army employing the superior strategy actually possessed the superior numerical and material advantage on the battlefield.¹⁶

The 1986 version of FM 100-5, clearly recognized the dominance of the political purposes for which wars are fought. With this edition of FM 100-5, the Army's keystone doctrine briefly addressed combat operations in the context of the political objectives they are intended to obtain. For the first time, many Army officers were introduced to the theories of Carl von Clausewitz (1780-1831). Clausewitz believed that war was a political act that was distinguished from other

¹⁶Larry H. Addington, *The Patterns of War Since the Eighteenth Century* (Bloomington: Indiana University Press, 1964), 41.

political acts by the violence of its means.¹⁷ Clausewitz believed that the political objectives that causes a nation to go to war determine the amount of force required to obtain its objectives and the degree to which a nation is willing to commit its resources to the endeavor. Clausewitz had a significantly broader view of war, its purposes and how to win, than did Jomini. With the acceptance of the AirLand Operations concept, the Army will, again, move toward a broader view of what its role in war is.

The AirLand Operations concept is the extension of AirLand Battle doctrine. It, as Michael Howard suggested, incorporates an analysis of the changing world situation with the role of the Army in the year 2000.

The threats to U.S. national interests are no longer dominated by a single nation or faction. With the demise of the Warsaw pact and improved capabilities of NATO nations, the likelihood of the Soviet Union or its allies successfully projecting combat power, in an offensive role, is greatly reduced. The domestic issues facing the Warsaw Pact make it equally unlikely that they will continue to support or encourage the spread of communism to developing nations. These factors will allow conflicts of a regional, ethnical, or religious nature, to receive worldwide attention. Threats to U.S. interests in regions of the world that have here-to-fore received little attention, or resources, will be addressed

¹⁷Ibid.

more fully. The requirement for the U.S. military to be capable of projecting combat power world-wide has never been greater. Sea based and forward deployed forces, as well as those based in the Continental United States (CONUS), must: be able to deploy rapidly, expand to accept augmentation, and operate as a member of a coalition.

The end of the Cold War, has combined with the exorbitant expense of developing, manning and maintaining a sizable military force to spur the decision to reduced the Army. The AirLand Operations concept identifies maximizing the use of technology as the key to future success, in an Army that may be called upon to fight numerically outnumbered.

The concept introduces the notion of an Operational Continuum. The operational continuum encompasses a range of operations progressing from peacetime competition, conflict, to war --in ascending levels of hostility. The Army of the future must be capable of functioning anywhere along this continuum.

Under AirLand Operations, the concept of the nonlinear battlefield is expanded even further than under AirLand Battle. Nonlinear operations are described in conjunction with operational maneuver, in the AirLand Operations concept. The nonlinearity of the battlefield is no longer simply a possible environment that we must be capable of fighting in: it is now one that we will attempt to create by conducting operations over long distances. The nonlinear environment,

according to doctrine developers, will allow us to avoid the mutual attrition of linear operations. This, in turn, will make it possible for us to better optimize our technologies.¹⁸ The concept goes on to explain that nonlinear opportunities should be created at the lowest echelon possible. It states:

Commanders will seek to create nonlinear opportunities at the lowest possible echelon, but realize that battalions and even brigades may fight linear battles to create the opportunity for divisions and corps to conduct operational maneuver.¹⁹

Instead of just looking at the nonlinear battlefield in terms of close, deep and rear operations, the AirLand Operations concept adds the idea of one extended battlefield. The battlefield has potentially six areas where activity can take place. They are the:

a. Joint intelligence & Air Attack area - where U.S. joint, national and theater intelligence/ target acquisition assets are integrated with those of our allies to meet the operational commanders requirements.

b. Joint battle area - where Army forces fight to the depth of all their weapons systems and where Army and Air Force capabilities overlap.

c. Shaping area - where the enemy situation is developed to establish and initiate the operational plan, as well as to

¹⁸TRADOC PAM 525-5, AirLand Operations. 13.

¹⁹Ibid.

provide security.

d. Close battle area - where the commander chooses to conduct decisive operations.

e. Dispersal area - where maneuver forces are held in relatively secure areas until committed.

f. Staging and logistics area - where logistics forces prepare preplanned combat configured packages in anticipation of combat requirements. Also the area where people, supplies, and equipment arrive and depart the theater of operations.

Historical Combat Service Support Doctrinal Developments.

U.S. Army logistical doctrinal development between 1945 and 1973 were very limited. While the Army leadership focused on improving tactical operations, little if any serious progress was made in the Army's ability to sustain combat operations.

While logistics units were organic to the WW II divisions. Combat Service Support (CSS) units at echelons above division were not part of the standing Army. Only after a theater of operations was established did the logistics structure needed to support the maneuver forces get created. Even with this, the Table of Organization & Equipment (TO&Es) used to build these organizations was not fixed. They were created based on the demands of the particular mission or

theater of operation.²⁰

Logistics considerations in WW II focused on stockpiling sufficient quantities of supplies to sustain operations for a specified number of days. Field commanders required that large amounts of stocks be prepositioned before they would begin operations.²¹

In 1944, a study of the need for concentrating logistics operations in a single command was conducted at the Command and General Staff College. The study indicated that commanders in the field needed a single point of contact to handle all supply and maintenance related issues.²² One of the study's recommendations was that logistics teams from each technical service be used to form combined units and headquarters staffs. These staffs, according to the study, should be trained to control the logistical teams.²³

By the end of WW II, logistical headquarters were being developed using standardized TO&Es. These organizations, only existing on paper, were named Logistical Commands in 1949. There were three types of commands, depending on the size of the force to be supported. A *Type A* command consisted of from 9,000 to 15,000 men who would

²⁰Gary H. Wade, "Rapid Deployment Logistics: Lebanon, 1958". (Fort Leavenworth: Combat Studies Institute, U.S. Army Command and General Staff College, 1984), 2.

²¹Ibid.

²²Ibid., 7.

²³Ibid., 2.

support approximately 30,000 combat troops. A *Type B* command consisted of 35,000 to 60,000 personnel and could support a force of 100,000. The largest command, a *Type C* command consisted of 75,000 to 150,000 soldiers and was intended to support more than 400,000 troops.¹⁴

The doctrine that accompanied these organizations was referred to as the "push-pull" system. Logistics in a new theater of operation would evolve in three phases. The first phase would employ a push system of supplying units automatically, based on the amount of equipment and personnel on-hand. This phase would continue until the beachhead was secure. Phase II was semi-automatic. Replenishment of rations and ammunition would be based on status reports. Replenishment of other items, such as repair parts, would depend on unit requisitions. Phase III would begin when a theater became stabilized. At this point, resupply would be by requisition only.¹⁵

The Korean conflict validated both the logistical command concept of tailoring support, as well as that of phased resupply. By 1958 logistics doctrine consisted of tailoring a logistical command to support a specific operation and then basing that support initially on automatic requisitions and phased resupply.¹⁶

¹⁴Ibid., 3.

¹⁵Ibid., 5-6.

¹⁶Ibid., 6.

Command and control of divisional logistics units was a division headquarters responsibility, until as late as 1965. Between 1945 and 1965 all replacement management, maintenance, supply, medical, and transportation assets were assigned to the division trains. Specifically, the division trains of armor divisions contained medical, maintenance, and supply battalions. Medical units, however, were the only CSS units assigned below division level. As early as 1947, each armor brigade and infantry regiment contained a medical company. The division artillery regiment or brigade contained a medical section.¹⁷ In 1956, with the fielding of the pentomic division, the division trains became larger and more standardized throughout the Army. An Aviation company was added to the trains: while the supply battalion was reduced to a supply company. A transportation battalion was also added to the division trains.¹⁸ The aviation company and transportation battalion were designed to give the infantrymen of the Pentomic Division the mobility and agility required on the nuclear battlefield.¹⁹ The transportation company contained all of the divisions M113, Armored Personnel

¹⁷Jonathan M. House. "Toward Combined Arms Warfare: A Survey of 20th Century Tactics, Doctrine and Organization". (Fort Leavenworth: Combat Studies Institute, U.S. Army Command and General Staff College. 1984). 148.

¹⁸Ibid.. 156.

¹⁹Doughty, 16.

Carriers.³⁰ At this point in the development of Army aviation, the use of the helicopter was limited to the role of transporting supplies or personnel.³¹

In 1965, the Reorganization Army Division (ROAD) created a logistics structure that allowed the Army to take its first steps toward positioning CSS elements forward on the battlefield. The Division Support Command (DISCOM) came in to being under the ROAD concept; and it contained three battalions: one medical, one maintenance, and a supply & transportation battalion. Each battalion had the capability to put a company size element in the Brigade Support Area (BSA) of each maneuver brigade. By design, CSS units could and would be routinely located 15 to 20 kilometers behind the Forward Line of Troops (FLOT). Large numbers of CSS soldiers were assigned to combat units, down to as low as maneuver company level.

AirLand Battle Doctrine.

In 1983, with the development of AirLand Battle (ALB) doctrine, CSS units were designed to operate as far forward as one terrain feature behind the FLOT. The expectation was that maintenance, supply and medical personnel would frequently be

³⁰Ibid., 17.

³¹Ibid., 28.

found as far forward as 5 kilometers behind the FLOT. The new doctrine, derived from the lessons learned during the 1973 Arab-Israeli war, sought to maximize the rapid return of equipment and casualties to the fight. Maintenance, and medical operations, under ALB, are characterized by the "Fix Forward" concept. This concept states that the more that can be done in the forward areas, the better the maneuver forces can maintain tactical momentum in their offensive operations.

AirLand Battle doctrine postulated a battlefield similar to those of World Wars I and II, in its linear nature. The linearity of the battlefield tended to mitigate the risks of exposing CSS units to the new lethality of operating forward of the BSA. Under this new doctrine, threat maneuver forces are expected to find it extremely difficult to exploit any penetration of friendly lines. CSS units then, facing their greatest threat from indirect fire weapons, enemy aircraft and enemy special operations forces, anticipate being engaged by more lethal and devastating threat weapons systems.

Maintenance personnel joined the ranks of CSS soldiers who frequently move into and out of areas where combat operations are to be conducted. Until this point, logistics doctrine had reserved this right exclusively for combat medics. Supply and transportation operations are, for the most part, still limited to the BSA.

AirLand Operations.

CSS doctrine, under the AirLand operations concept, is expected to take another step toward moving more personnel forward on the battlefield. In order to meet the operational requirement to push supplies forward on the battlefield and to relieve the maneuver commander of his logistics burden, new organizations are being postulated. Sustainment requirements would have maintenance and medical personnel moving as far forward as the FLOT. Additionally, supply and transportation personnel are expected to deliver supplies as far forward as a critical weapon system sitting in position.¹² The desire to conduct combat operations over long distances¹³ (movement characterized by jumps of between 200 to 300 kilometers) will tend to isolate the BSA or the Division Support Area (DSA) from the nearest back-up organization. Brigades may find themselves operating at a considerable distance from the DSA. The impact of this will be felt directly by the CSS personnel attempting to bridge the gap between the forward combat element and the sustainment base.

The nature of the battlefield is also expected to change significantly. Brigades and battalions are intended to fight in a linear fashion, under AirLand Operations; however, divisions and corps are expected to fight without any friendly

¹²TRADOC PAM 525-5. AirLand Operations, 25.

¹³Ibid., 15.

unit on either flank. This non-linear battlefield will dictate that every unit be capable of providing all-around self-protection, and that CSS units must also be able to operate over large sections of unsecured terrain.

Summary.

The Pentomic Division represented the first significant shift in how the Army perceived its role in combat operations, following WW II. With this divisional structure, the Army introduced the idea that it had to narrow its focus to fighting the nation's greatest threat on what was seen as the most likely battlefield, that of Central Europe. The threat analysis done prior to the fielding of the Pentomic Division, produced three key concepts that have shaped the development of subsequent changes in Army doctrine. The first was that the Army had to be prepared to fight out numbered. The second was that the nuclear capability of the threat demanded that maneuver forces operate from dispersed locations and only mass immediately prior to beginning combat operations. And the third was that the battlefield would be nonlinear in nature.

The ROAD structure greatly enhanced the Army's capability to meet many of the demands identified during the Pentomic era. Mechanized divisions were developed as a result of the demands for dispersion, protection, and tactical

mobility. Combat service support planning, command and control, and overall capability was significantly improved with the creation of the DISCOM. With the establishment of this organization, a large combat service support element became organic to the division.

Both AirLand Battle Doctrine and the AirLand Operations concept confirmed the battlefield requirements identified as part of the Pentomic threat analysis. Over time, these battlefield requirements have been modified based on changes in threat capabilities. They remain, however, essentially the same.

Logistics operations under AirLand Battle doctrine were improved, at the tactical level, with the development of multifunctional support battalions. In addition to consolidating the responsibility for support of a brigade under one commander, the support battalion was organized to provide support teams as far forward as the maneuver unit combat trains.

CHAPTER III

METHODOLOGY

The intent of this study is to assess how well the logistical structure, proposed in conjunction with the AirLand Operations concept, can accommodate the requirements anticipated in order to sustain future operations. The 1986 edition of FM 100-5, Operations, introduced the logistics community to the idea of sustainment functions. Six functions were described as key to the success of logistical operations meeting the challenges of the AirLand battlefield.

This study will use the six functions as described in FM 100-5, as criterion for evaluating the sustainment structure supporting AirLand Operations. The logistics functions are: sustaining the soldier, arming, fueling, fixing, moving, and protecting the force. Two additional criteria shall be added to these six. They are command and control, and mobility.

A comparative approach will be used to evaluate each criterion. In analyzing each area the study will compare and contrast the requirements and capabilities existing under AirLand Battle with those anticipated under AirLand Operations.

This approach is used because the AirLand Operations concept is as an extension of the current doctrine. The new

concept is not intended as a replacement for AirLand Battle, but builds upon it. The evaluation of the logistical structure will be conducted from this perspective.

In discussing the criterion, the study will seek to describe each criteria in terms of task, condition and standard. The requirements of each function are the task it must accomplish. The logistics structure and procedures developed for each functional area provide its capabilities for meeting its requirements. They, then, are the conditions. The standard for each functional area is derived from the contribution it is expected to make to the ability of the operational, or tactical, commander to accommodate the dynamics of the battlefield. The objective of commanders will be to meet the demands of the battlefield (also described as battlefield dynamics) developed during the strategic threat analysis. Threat analysis is done as a part of the doctrinal development process. FM 100-5 and TRADOC PAM 525-5 have provided descriptions of what combat forces must be capable of doing to be successful in future battles. The standard for the logistics structure is to provide the capability, sustained over time, for the commander to accomplish his objectives.

This is the perspective that will guide the assessment of both logistics structures. Since AirLand Operations builds upon AirLand Battle, its logistics structure has the ALB structure as its foundation. The study of logistics in support

of the new concept has to recognize this relationship. The rating scheme that will be used during the evaluation process is as follows:

(+) - indicates that the capabilities that exist in an area exceeds anticipated requirements.

(-) - indicates that the capabilities do not meet requirements and a shortfall of some type exists.

(=) - indicates that the capabilities meet the anticipated requirements.

Functional Area Tasks¹⁴

In general, the task of each logistics function is as described below. While they are described in a fashion that might imply that each area is distinct, they are not: they are, in fact, interrelated and interdependent. Modifications made in one area may impact on the requirements of another. The tasks are:

Sustaining the Soldier. Here the task is to assure the uninterrupted flow of fighting men to the battle area and

¹⁴Except for C¹ and mobility, FM 100-5, Operations, 60-62, was used to develop the task of each functional area.

to provide necessary personnel services during operations. To support operations, units must be assembled, transported, and distributed as the commander requires, and their fighting strength conserved.

Arming. Today's weapon systems consume large amounts of ammunition. Given the large variety of ammunition and weapons in use and the expected fluidity of battle, arming the soldier has become a significant challenge. In periods of intense combat, arming the fighting units will be the largest, most time-critical task of the logistics system.

Fueling. Logisticians must be prepared to operate a high volume fuel system merely to support routine consumption rates. In peak consumption periods, victory may depend on the ability of the logistics system to increase the flow of fuel.

Fixing. In all operations, time will be critical and replacement equipment will be scarce. The force which is better able than its opponent to recover damaged equipment and return it to service rapidly will have a clear advantage in generating and concentrating combat power.

Moving. Men, equipment and supplies must be moved rapidly and in quantities to support operations. Operational

and tactical actions require timely concentration of units and materiel and will often demand short notice movement of sizable forces and major shifts in direction of movement. At the tactical level: units, supplies, and important facilities must be moved, as battles progress, to assure responsive support of committed units as large as corps.

Protecting the Force. Protecting the logistics effort is an integral part of all combat operations. Because logistical support is necessary to every operation, the support system will be a prime target of enemy operations both in the forward areas and in depth. Enemy air, missile, ground and unconventional warfare forces will attack the support system as part of a coordinated battle (or campaign) plan. To the greatest extent possible, combat service support forces must seek protection in dispersion, concealment, and self-defense.

Command and Control (C²).¹⁵ Common to all operations--close, deep and rear--is the necessity for superior command and control. The command and control system must facilitate freedom to operate, delegation of authority, and leadership from any critical point on the battlefield. The larger force should remain alert to and be prepared for exploitation of advantages developed by subordinate units

¹⁵Ibid., 21-22.

through the course of any operation. A command and control system seeking to promote such flexibility and freedom to operate independently must emphasize certain specific operational techniques and command practices. First, it must optimize the use of time by routine use of warning orders, situation updates, and anticipatory planning and positioning of forces. Leaders throughout the force must be ready to change directions of movement, bases of fire, support arrangements, and task organizations without hesitation during operations.

Mobility.¹⁶ Maneuver occurs at both the operational and tactical levels. Operational maneuver seeks a decisive impact on the conduct of a campaign. It attempts to gain advantage of position before battle and to exploit tactical successes to achieve operational results. Tactical maneuver seeks to set the terms of combat in a battle or engagement. It is the means of gaining and sustaining the initiative, exploiting success, preserving freedom of action, and reducing the vulnerability of friendly forces. At all levels, effective maneuver demands: air and ground mobility, knowledge of the enemy and terrain, effective command and control, flexible operational practices, sound organization, and reliable logistical support. Successful tactical maneuver depends on skillful movement along indirect approaches

¹⁶Ibid.. 12, 13 & 16.

supported by imaginative commanders: discipline, coordination, and seeking speed: well trained troops: and logistically ready units.

The Nature of the Battlefield (Conditions)

The nature of the battlefield, described in Chapter 2, serves as a general framework in which to judge the adequacy of logistics operations. This framework is virtually unchanged since the development of the Pentomic Division. The Army must be prepared to operate on a nonlinear battlefield, dispersed over a large area, and over large distances.

Nonlinear Operations. Combat and logistics operations will occur on a nonlinear battlefield. The differences between the nonlinear nature of the AirLand Battle and AirLand Operations battlefields are driven by the nature of campaigns at the operational level. Under ALB, corps commanders could expect to fight flanked by other units on their left and right. The ALO concept indicates that this will not be the case in future operations. Nonlinearity under ALO, not only encompasses close, deep and rear operations: but will include the six area identified in Chapter 2. These are: joint intelligence and air attack, joint battle, shaping, close battle, dispersion, and logistics and support areas.

Dispersion. The expectation that maneuver units will move from dispersed locations to concentrate combat power at a decisive place and time has undergone a slight modification. The concept of massing, described under the current doctrine, will be emphasized as an operational necessity. Units will be dispersed until favorable preconditions can be created for offensive operations. Once the conditions are set, maneuver forces will quickly mass to concentrate against an enemy weakness. The requirement for maneuver forces to be dispersed on the battlefield was not new with AirLand Battle doctrine. It has been described as a battlefield requirement ever since the development of the Pentomic Division. The old general defense plans of forces in Central Europe suggest that this aspect of combat operations, under AirLand Battle doctrine, was neither fully developed nor well executed. With the development of AirLand Operations, the battlefield has been structured so that dispersion is an integral part of how combat forces are to fight.

Depth. The concept of depth, introduced under AirLand Battle doctrine, has also been modified. Depth, as described in FM 100-5, describes operations against second echelon forces. Combat forces fighting under AirLand Operation will seek to maneuver over longer distances. Battles, under favorable conditions, will be fought over distances of 200 to 300 kilometers.

Battlefield Dynamics: The Standard

The success of the logistics system must be measured by how well it allows the operational or tactical commander the flexibility to apply the elements of combat power. Under AirLand Battle, success on the battlefield depended on the ability of forces to achieve initiative, agility, depth and synchronization. These, according to FM 100-5, are the tenets of the AirLand Battle.

Under AirLand Operations, this list can be modified to include global deployability: thus, recognizing the fact that the Army must be prepared to fight on any battlefield. AirLand Battle doctrine focused on the defense of Central Europe. The AirLand Operations concept would posture the Army to be capable of world-wide power projection. The Army must be prepared to fight and win in an immature theater.

In chapter 4, the study will further define these general descriptions. The demands of the logistics system itself and the requirements associated with its operation will be added. The chapter will also develop a description of the conditions under which combat and logistics operations must be conducted. An assessment of the difficulties associated with operating under each functional structure will be made. The assessment will discuss how operations are conducted, the difficulties associated with the structure in use, and the significance of the changes proposed with the ALO concept.

The chapter concludes with an evaluation of the ability of the logistics structure to meet the demands of AirLand Battle doctrine and the AirLand Operations concept. Strengths and weaknesses of each functional area will be discussed in the evaluation section.

CHAPTER IV

ANALYSIS

In this chapter, the general tasks described in Chapter 3 will be further defined. An assessment will be made of how well each logistics function (the task), accommodates the dynamics of the battlefield (the standard), given the conditions as they will/ have existed under the structures. The chapter will concluded with an evaluation of the proposed logistics system under AirLand Operations. The criteria being used are: sustaining the soldier, arming, fueling, fixing, moving, protecting the force, command and control and mobility.

Sustaining the Soldier

Task. The requirements of the sustainment function are as they were stated in Chapter 3; they do not require further definition and remain as described earlier. In essence, the function seeks to provide well trained soldiers, in the required number, with the required skills to a theater of operations.

Conditions. The logistics function of sustaining the soldier is a general category that is used to describe the result of three related subordinate functions. These are: Personnel Services, Field Services, and Health Services. Personnel Services seek to provide soldiers of the proper Military Occupational Skill (MOS), in the right number, to the battlefield commander. Field Services are designed to ensure that soldiers are properly equipped and supplied. Health Services are directed toward returning the largest number of wounded soldiers to the battlefield, as quickly as possible.

Personnel Services. Personnel service support can be further broken down into five major functional areas. Of these, Personnel and Administrative Services have the greatest impact on the sustainment of combat operations. The primary subfunctions of personnel and administrative services are information systems for: strength accounting, replacement operations and casualty reporting.

All three of these information reporting systems are designed to keep the tactical commander informed as to the disposition of his units. Information fed into the Command and Control Strength Reporting System (C2SRS) determines the number and MOS of replacements, as well as the quantity of rations pushed forward on the battlefield. The critical characteristic of the system; then, is the timeliness of the information. Replacement personnel, in the right MOSs and

quantity. can not begin to flow until this information reaches the division Personnel Replacement Detachment (PRD). The PRD supports the division and is provided by the corps Personnel Services Company (PSC).

Replacements are processed through replacement companies at theater and corps levels. They are then distributed by the replacement detachment at division level. Transportation for the movement of replacements from theater level through the corps to the division is coordinated through movement control channels. Once replacements arrive in the BSA and are released by the Brigade S1, the gaining unit becomes responsible for moving them from the BSA forward. This also includes personnel returning to duty through the health services system. In this regard, the replacement system is responsible for making the transportation arrangements for soldiers who have been discharged from the field hospital system. Medical units are prohibited by the Geneva Convention from transporting soldiers back to combat duty after they have been discharged.³⁷

Field Services. Field services are comprised of supplying the soldier: clothing and exchange, laundry and bath, and graves registration. Graves registration is now referred to as mortuary affairs. Mortuary affairs and aerial

³⁷FM 8-10, Health Service Support in a Theater of Operations (Washington D.C.: Headquarters Department of the Army, 1991). 3-1.

resupply are the two field services that are never suspended during combat operations. Mortuary affairs includes recovery, identification and evacuation of deceased personnel and handling and processing of their personal property. It also includes internment of remains, if necessary.

Currently, the deceased soldier's unit is responsible for recovery and evacuation of his/her remains to the nearest collection point. The collection point is usually in the BSA, and is co-located with the Ammunition Transfer Point (ATP). This is so that remains may be back hauled on corps trucks departing for the rear. The FSB is augmented with mortuary affairs personnel from the Main Support Battalion (MSB), which has also been augmented by the Supply and Service company in the Corps Support Command (COSCOM).

Remains are further evacuated to collection points at corps or higher. The corps field service company performs General Support (GS) to the corps for both divisional and non-divisional units. The mortuary affairs section of the field service company receives, identifies and processes remains for evacuation to a corps collection point. Emphasis is on identification and processing of remains for rapid evacuation to more permanent facilities at theater level or in CONUS.

There aren't any significant changes planned, as a part of AirLand Operations, for either personnel services or field services. Indirectly, however, both systems will be altered by proposed changes in the distribution of

transportation assets at the brigade level. This aspect of the proposed CSS structure will be dealt with under the function of moving.

Health Services. The Health Services System (HSS) is a modular system, with built in redundancy, designed to rehabilitate patients at the lowest practical level and return them to duty. The focus of the HSS is the effective regulation of sick, injured and wounded patients, in the shortest possible time, to medical treatment facilities that can provide the required treatment.

Medical care is provided to a theater at five echelons. The first is at the unit level, echelon II is at division level, echelon III is at corps, IV is at theater level and is characterized by general hospitalization in the Communications Zone (COMMZ), and finally, echelon V is in the CONUS or some other theater not involved in the operation referred to as the Zone of Interior (ZI).¹⁹ This paper will focus on echelons I, II and III.

The first care a soldier will receive will be in his/her unit, and will be provided by self-aid, buddy aid (to include a combat life saver), combat medic or by personnel in a treatment squad. Echelon I medical care covers the area from the battalion aid station forward to the FLOT.

¹⁹Ibid.. 3-3 thru 3-5.

Echelon II, or division level care, is provided by the medical company in the FSB, for the maneuver brigades; and is provided by the medical company in the MSB, for soldiers in the division rear. Medical units, regardless of where they are located, provide care on an area support basis. They provide support to anyone operating in or passing through their area of responsibility.

The medical company has an area support section. This section consists of a treatment squad (like the one at echelon I), an area support squad, and a patient holding squad. The squads can operate independent of each other for short periods of time. The clearing station in divisional medical companies are capable of holding up to 40 patients.

Echelon III is characterized by care that is provided by units such as Mobile Army Surgical Hospitals (MASH). Combat Support Hospitals (CSH). and Evacuation Hospitals (EVAC). It is the first level where hospital care is found.

The MASH is intended to operate as far forward as the division rear or forward in the corps area. The expectation of the MASH is that it provides temporary hospitalization for patients who require life saving surgery. It is designed to be 100% mobile, without patients, and provides a 60 bed capability. They are normally allocated one per division or separate brigade.

The CSH is significantly less mobile than the MASH: it is about 35% mobile, and has a 200 bed capacity. It is

normally allocated one per division. separate brigade (if not otherwise supported by a MASH) or division size unit.

The Evacuation Hospital is located in the corps rear area. It supports a 400 bed requirement, and it is designed to facilitate the medical regulation and patient evacuation from the combat zone.

Medical Regulation/ Patient Evacuation.

Medical regulation is the means through which medical care managers determine where, how, and when patients will be moved on the battlefield. It begins when a trained medical care provider assesses the soldiers wounds during the triage process. The system entails identifying patients to be evacuated, locating available beds, and coordinating evacuation means to move each soldier to the appropriate level hospital. Medical regulation allows the system to spread the workload evenly throughout the Combat Zone (CZ) and Communications Zone (COMMZ); assures adequate beds are available at the gaining hospital and that soldiers needing surgery are moved to the appropriate hospital, with the least delay.

Patient evacuation is the means by which medical regulation occurs. It is the timely, efficient movement of wounded, injured, or ill soldiers to appropriate medical treatment facilities. There are generally three means by which a patient is evacuated off the battlefield. They

are: by aeromedical means (either by Army air or, in some cases, air force assets); ground medical assets, both track and wheel; and finally, by non-medical means.

Evacuation from the point of injury or illness to the Battalion Aid Station (BAS) is a unit responsibility. Evacuation from the BAS to the clearing station, or higher, is the responsibility of the echelon of care receiving the patient. Movement of a patient from the clearing station to a CSH or MASH is the responsibility of the medical brigade/group in the COSCOM.

Army air and ground ambulances are used in the CZ for the evacuation of patients. The preferred means of evacuation from the CZ to the COMMZ is by United States Air Force (USAF) aircraft. Movement of patients from the COMMZ to the ZI will normally be done by the USAF. The medical regulators will coordinate for non-medical transportation for emergency situations. This is done through the COSCOM Movement Control Center (MCC).

Medical Resupply. Medical resupply operations, like health service support in general, is "stove piped." A stove piped system is one in which all aspects of planning and execution and transportation are performed by a single branch (in the case the service corps).

During the initial stages of an operation, units receive preconfigured push packages through their supporting medical company. These push packages originate in the medical logistics (MEDLOG) battalion operating in the corps area. The corps MEDLOG battalion provides push packages to the division every 48 hours. This continues until normal requisitioning procedures are established in the theater of operations. When normal replenishment procedures are in effect, medical resupply is by supply point distribution.

The packages from the corps are sent to the medical company of the MSB in the DSA. The Division Medical Supply Office (DMSO) is responsible for medical supply management/operations within the division. It reconfigures the push packages and distribute them to the medical companies in the FSBs. During normal supply operations, it maintains the stockage levels of the forward medical units. The DMSO is also responsible for processing and filling any requisitions the forward medical companies pass to it.

The normal method of distributing medical supplies is by means of back-haul. Ambulances, or other non-medical vehicles belonging to the FSB that return to the BSA from the DSA will carry supplies destined for the medical company. Corps ambulances returning to the division area carry supplies from the MEDLOG battalion to the DMSO. Large amounts of medical supplies, or supplies issued on an emergency basis require the use of corps or division transportation assets.

Medical supply officers at the division or corps must coordinate these movement requirements with the appropriate movement control center.

Medical Care & AirLand Battle Future.

Currently, health service support for echelons I & II is provided by a modular medical system. This aspect of medical care will be extended to echelons III & IV. under AirLand Battle Future (or MED Force 2000, according to FM 8-10). The advantages of the modular medical system, according to its developers, are that it enables sustainers to:

- a. Rapidly tailor medical assets to specific requirements.

- b. Augment or reinforce modular units that become ineffective.

Probably the most significant improvement in medical care under MED Force 2000 is the surgical capability and holding capacity added to the corps.

Assessment. The information processed through the Command and Control Strength Reporting System (C2SRS) is critical to the initiation of replacement operations. The information flow begins at the unit level. Personnel strength reporting at this level is a manual process. Losses are

reported to the battalion S1 using whatever means of communications available. The S1, using a Tactical Army CSS Computer System (TACCS), updates the battalions manning rosters. The TACCS can transmit data either by using the Army communications network or by downloading it to a floppy diskette. Eye witness reports, which verify the reports of soldiers killed in action, are forwarded manually through the personnel chain.

Once the information is prepared, all casualty reports, and any strength data that can not be transmitted via radio/telephone must be sent to the brigade S1 by courier. The brigade S1, using his TACCS computer, must then transmit the data forward through similar means to the replacement detachment. A replacement detachment from the corps PSC is normally located in the division rear. The replacement detachment consolidates the division data and transmits it to the personnel units in the corps area. This is normally done through the DISCOM data link with the COSCOM.

Although the reporting system has some difficulties, units still have been able to provide the necessary information. The difficulty associated with personnel data transmission is not as pressing a problem as the mobility of the COSCOM medical treatment facilities.

The medical treatment and patient holding capabilities improve under MED Force 2000; the transportability of this capability decreases. The MASH remains 100% mobile; however.

the mobility of the CSH and the Field Hospital is decreased. The mobility of the CSH drops from 64% to 35%; and the mobility of the Field Hospital drops from 37% to 0.

Arming

Task. The task of the arming system will be to provide large quantities of ammunition to combat forces. Under AirLand Battle doctrine this is accomplished using supply point distribution. Additionally, ammunition will be organized into combat configured loads, either in the COSCOM area or in the theater storage areas supporting the corps. Combat configured loads are shipments of ammunition that have been packaged to provide a mixture of the types of ammunition available in the theater for specific weapons systems. The loads are prepared based on the types of units being supported. A combat configured load would be developed for divisional field artillery units, one for armor units, and one for mechanized infantry units, etc.

Under ALO, the system must provide unit distribution of ammunition. This procedure requires the support organization to move the ammunition on its organic transportation assets. The requirement for combat configured loads remains as an arming requirement.

Conditions. Ammunition supply in a theater of operation is based on a continuous refill system. Stocks issued to the users are replaced by stocks moved up from the rear. Ammunition received in the corps area may be moved from a port to a Corps Storage Area (CSA), or it may be shipped directly to an Ammunition Supply Point (ASP). The CSA is normally located in the corps rear and supports the ASPs and the Corps Troops. The ASPs are more forward than the CSA and may be as far forward as the division rear. In a mature theater of operation, movement of ammunition from the port or COMMZ to the CSA will primarily be by the use of railroads. In an immature theater, alternative means, either ground or air, must be substituted.

Tactical operations are supported by Ammunition Transfer Points (ATPs) operated by the supply company of the FSB. One ATP is located in each brigade support area. The ATP in the division rear area, which supports the Division Troops, is operated by the direct support (DS) ammunition company in the COSCOM.

Ammunition is currently supplied using supply point distribution; and it is one of three scheduled classes of supply. A scheduled class of supply is one which the maneuver units do not have to request. Requirements for a scheduled class of supply are forecasted and shipped without a requisition being provided. The other two scheduled classes of supply are Class I (rations) and Class III Bulk

(petroleum). In the case of ammunition, the Division Ammunition Officer (DAO), is responsible for ammunition forecasting, management, and control within the division.

The movement of ammunition forward from the CSA or ASP is by way of trucks assigned to the COSCOM. The COSCOM trucks carry ammunition forward to the ATPs and drop the Stake and Platform (S&P) trailers used to move it. The maneuver units, organized with enough transportation assets to carry their basic load of ammunition transport the ammunition until its consumed. The COSCOM retrieves the empty trailers at the ATP site the next time they deliver ammunition. On an exception basis, ammunition can be deliver farther forward than the ATP. This normally means the COSCOM trailers are dropped at a prearranged location; and the ammunition maybe left unprotected until the using unit picks it up.

Assessment. The organizational structure of the COSCOM can be tailored to fit the demands of the corps, and the theater of operations. This makes a comparison of transportation lift capabilities and an estimate of the ammunition tonnage requirements, unnecessary. It should suffice to say that the COSCOM can be expanded, if necessary, to meet the ammunition haul requirements. However, as the sustainment base moves toward the AirLand Operations concept, ammunition distribution at the tactical level faces three old

challenges. The challenges to the ammunition system remain: the preparation of combat configured loads; ammunition distribution; and the storage, protection, or movement of unissued ammunition.

The sustainment concept in support of AirLand Operations calls for ammunition, as well as all supplies, to be provided in pre-configured loads. It also indicates that supplies be delivered to either the unit trains or to major weapons systems.

The V Corps GDP anticipated that existing pre-configured Class V packages would only suffice for the first four days of battle. After four days, pre-configured stockpiles would be exhausted; and the system would revert to ammunition resupply by type of round. The ammunition resupply system was expected to revert to ammunition issue by type of round because of the lack of personnel. The corps ammunition units lacked the personnel authorization needed to prepare the packages over a prolonged period of time. The point here is that, in the theater where the greatest logistical preparation of the battlefield has occurred, the preconfiguring of Class V is limited by personnel available to do the job. The Combined Arms Support Command (CASCOM) projection for ammunition resupply shows that the FSB will prepare the combat configured loads. The requirement to have the personnel to accomplish the task has not been altered by the location on the battlefield where it is to be performed.

An affect of the pre-configured load in Europe was that even the most thoroughly planned packages contained ammunition that wasn't needed at the time it was provided. The result was that ATPs were used as down load sites so that corps trailers could be returned to the COSCOM for other missions. When this happened, the ATP became a storage site and was less mobile. A bigger impact of pre-configured loads was that the carrying capacity of the trailers were not maximized. More trailers were needed when pre-configured loads were used. The CASCOM projection for utilization of the available transportation assets shows preconfigured combat loads for maneuver units that have not been task organized. It also shows small arms ammunition being moved as space fillers on trucks carrying main gun rounds. This picture of Class V operations does not necessarily reflect how things are actually done.

AirLand Operations will carry an additional ammunition transportation price tag. As the system moves from supply point distribution to unit distribution, the division or the brigade will be required to transport ammunition to multiple locations forward of the BSA. Units will seek to disperse more under this concept than they have in the past. The sustainment system must be prepared to move as far forward as the individual company trains: and it must move to multiple locations. This aspect of sustainment will be looked at closer under the function of Moving.

Fueling

Task. The task of the fueling system is significantly different under ALO than it was under ALB. As mentioned previously, ALB doctrine was designed for the defense of Central Europe. The AirLand Operations concept would emphasize offensive operations anywhere in the world. This will not only impact on how much fuel will be needed, but also on the distances it must be carried. Just as in the arming system, under ALO, fuel will be issued using unit distribution. It is currently provided using supply point distribution.

Conditions. The provisioning of Class III (bulk) is very similar to Class V. Bulk petroleum is stored and transported by units in the COSCOM. Petroleum storage units establish storage sites in the corps rear area. Transportation units move the petroleum to the division area. Corps units primarily push

supplies to the supply and service company of the MSB. The MSB then moves Class III forward to the BSA. The supply company in the BSA is responsible for providing support to the maneuver units, which can carry their basic load of bulk fuel.

Also like Class V, fuel is a scheduled class of

supply. It is pushed to the division based on the fuel forecasts provided by the Division Materiel Management Center (DMMC). Fuel forecasts are made by the maneuver battalions and passed through the brigade S4 and the FSB to the DISCOM. The capability of CSS units to distribute fuel in Europe is dependent on the extensive logistics preparation of the battlefield that has already taken place. The prepositioning of fuel has allowed fuel, under ALB, to accommodate demands.

Assessment. Again, the tailorability of the corps allows petroleum and transportation companies to be added to match demands. Under AirLand Operations, the DISCOM picks up the fuel hauling capability of the maneuver units. These assets, intended to move fuel from the BSA to the using unit, do not increase the divisions hauling capability. As a matter of fact, as in the case of ammunition resupply, it is more reasonable to expect that the unit distribution requirement will produce a need for more bulk petroleum assets. If the aspect of global deployability is added to the petroleum equation, the problem gets more difficult. The 5,000 gallon tanker, which is the European mainstay, has limited off road trafficability. It can not be easily used on unimproved surfaces.

Fixing

Task. The task of the fixing function can be further defined as requiring the projection of maintenance capability forward on the battlefield. Under ALB doctrine, the fix forward concept required maintenance support teams to go to the location of a damaged weapon system. Additionally under ALB, the evacuation of equipment off the battlefield is the responsibility of the direct support maintenance unit. Movement of a deadlined piece of equipment in to the Unit Maintenance Collection Point (UMCP). referred to as recovery. was the responsibility of the owning unit.

Under the ALO concept, the responsibilities of the support unit are increased. The maintenance unit will be responsible for the recovery and evacuation of equipment from the battlefield. The support maintenance system acquires the responsibility for performing all organizational level maintenance on equipment in the brigade. Currently, the maintenance company provides only direct support maintenance to the unit is supports.

The procedures used to determine the stockage requirements for repair parts. at brigade and division levels. will change. Class IX repair parts operations also change under ALO. Stocking, storing, and transporting repair parts in support of a maneuver brigade becomes the responsibility of the FSB.

Conditions. The objectives of the maintenance doctrine and structure, both in current use and postulated under ALO, are to: rapidly recover damaged equipment, repair equipment as far forward as feasible, and return the maximum amount of unserviceable equipment to combat as quickly as possible.¹⁹ The maintenance structure to accomplish these objectives, under ALO, is not very different from that functioning under ALB. With ALO, maintenance tasks performed by equipment operators/ crews will be increased. Organizational maintenance functions, currently performed by personnel organic to maneuver units, will be combined with those of DS maintenance units. Forward Support Battalions (FSBs) will gain a company size unit called the Combat Maintenance Company (CMC), and they will be given this combined mission. The combination of organizational and direct support maintenance will be referred to as Field Maintenance.

Field Maintenance will be conducted in the same areas on the battlefield where organizational and direct support maintenance are being performed now. The three maneuver company maintenance teams and the direct support System Support Teams (SSTs) will be combined to create the three platoons that will provide this capability. The standard DS maintenance company will continue to operate out of the Brigade Support Areas (BSAs).

¹⁹"Combat Service Support Battlefield Functional Mission Area Concept." 1-4.

The capability of the MSB to provide backup maintenance support to the FSBs will no longer exist. Backup support will be provided by the maintenance company of the Corps Support Battalions (CSBs) that will operate in the division rear. General Support maintenance units will be assigned to the Theater Army and may operate forward in the Corps area. These units will continue to support the theater supply system, as they do under ALB. They will, however, be composed of civilian workers. Depot maintenance operations will continue as they are under ALB.

An aviation maintenance group will provide aviation unit and intermediate maintenance (AVUM/ AVIM) support to division and corps aviation units. Mission support will be provided where needed, and it will be executed by tailored Operational Maintenance Battalions (OMB) on a dedicated OMB aviation brigade relationship. An OMB will augment the AVUM/ AVIM capability organic to the Armored Cavalry Regiment. One OMB will provide both levels of maintenance support to medical brigade aircraft.⁴⁰

The maintenance time guidelines, which is a general guide for how much time will be expended repairing a deadlined weapon system, have been modified slightly; they reflect the changes in the maintenance structure. Maintenance managers are still guided by a 4 hour guide for repairs at the site were the system goes down. Repair operations in the UMCP are

⁴⁰Ibid.. 3.

limited to 8 hours. Field maintenance, which will occur in the BSA or as far forward as the FLOT, is expected not to exceed 24 hours. Depending on METT-T, equipment that can't be repaired within 24 hours is to be evacuated to the DSA. The difference between ALB and ALO at this point is that the units receiving the equipment will be a part of the CSB providing backup support to the FSB.

One of the requirements, expressed by developers of the sustainment piece to ALO, is to free the maneuver battalion commanders from the burden of CSS.⁴¹ The proposed changes in the maintenance structure, in conjunction with those in the Class IX system, will make the consolidation of organizational and direct support repair parts possible. Personnel responsible for identifying repair parts requirements and those responsible for requisitioning parts will be assigned to the FSB. Additionally, reductions in the sizes of unit Prescribed Load Lists (PLIs), the division's Authorized Stockage List (ASL), will be accomplished by centralizing the management and control of these assets under the DISCOM and FSB commanders. The combat readiness of the division is expected to be higher under this concept, because these changes are anticipated to improve repair parts visibility and availability.⁴²

⁴¹TRADOC PAM 525-5, AirLand Operations, 24.

⁴²TRADOC PAM 525-XX, 5.

As described previously, the proposed maintenance concept will change how unserviceable equipment is removed from the battlefield. Maneuver units are responsible for recovering damaged weapon systems back to the UMCP. Movement of these assets from the UMCP rearward, referred to as evacuation, is the responsibility of the DS maintenance company. The Battlefield Maintenance System (BMS) concept places all recovery assets in the brigade under the control of the FSB. The FSB will be responsible for the rearward evacuation of weapons systems from the down site to the UMCP and beyond.

Assessment.

Maintenance System Support Teams. The TO&E identifiable System Support Teams (SSTs) were designed to provide tailored DS support forward on the battlefield. The Shop Officer is expected to receive a maintenance mission and build a Maintenance Support Team (MST), based on mission requirements. The MST could be smaller or larger than the SST. The SST, however, provides the capability to send a tailored package forward, without degrading the capability of the base company. This has not been the manner that the fix forward maintenance capability has been provided. In reality,

the entire SST has been moving with, and in support of, the battalion for which it was designed.

Recovery Operations. Vehicle recovery and evacuation have been a serious problem since the fielding of the M1 Abrams tank. The M88 Recovery Vehicle can recover the Army's main battle tank only with great difficulty. The solution proposed under the BMS is the Rapid Recovery Vehicle (RRV). The anticipated mission of the RRV is to recover a down tank to a point on the battlefield where a maintenance crew, with an Armored Maintenance Vehicle (AMV), can repair it. This would routinely be as far forward as one terrain feature behind the FLOT. A special capacity of the RRV is its ability to link with a tracked vehicle without either crew having to get out of their vehicles. The planned distribution of these assets is one RRV per maneuver company. The AMV will provide the capability for a maintenance team to be protected from small arms fire while moving forward to a deadlined system.

Moving

Task. FM 100-5 introduces the sustainment function of transportation with the following words:

Operational and tactical actions require timely concentration of units and materiel and will often demand short notice movement of sizable forces and major shifts in direction of movement. At the tactical level, units, supplies and important facilities must be moved as battles progress to assure responsive support of committed units as large as corps.¹³

The value of this quotation is that it establishes an expectation that units, as large as corps, must be able to mass and shift orientation quickly. FM 100-15, in its chapter on Large Unit Movements, further established the standard for movement of the corps. FM 100-15 states:

The transportation network must be analyzed to ensure it is sufficient to accommodate the anticipated move, while allowing the continued support of ongoing operations.¹⁴

Condition. Under AirLand Battle, transportation operations are centrally controlled and decentrally executed. Maneuver battalions are provided with the ability to carry their basic load of supplies. The Transportation Motor Transport Company (TMT) of the MSB contains the division's transportation assets. Requests for transportation are passed from the brigade, through the FSB, to the Movement Control Officer (MCO) in the DISCOM headquarters. The MCO has the responsibility for managing the transportation assets of the

¹³FM 100-5, Operations, 61.

¹⁴FM 100-15, Corps Operations, 7-12.

TMT. Additionally, he has the authority to task the TMT to perform missions in support of the division. When mission requirements exceed available transportation assets, the MCO coordinates the excess requirements with the Division Transportation Officer (DTO). The DTO, assigned to the Office of the Assistant Chief of Staff for Logistics, G-4, is responsible for coordinating transportation requirements that exceed the divisions capability. The DTO is the link to the Movement Control Center (MCC) of the COSCOM. The MCC then tasks COSCOM assets, either directly or through one of its Movement Control Teams (MCT), to fill the transportation shortfalls of the division. When the COSCOM capability is exceeded, the MCC coordinates with the Theater Army Movement Control Agency (TAMCA).

The transportation piece of the sustainment concept for AirLand Operations represents a radical change from previous operations. Control of transportation assets is decentralized under the new concept. Vehicles previously assigned to the TMT of the MSB are redistributed among the three FSBs. Additionally, the transportation assets of the maneuver battalions are placed under the control of the FSB. Each FSB acquires a Combat Transportation Company (CTC), under the Battlefield Distribution System (BDS). The missions of the CTC: are to provide direct transportation support to the brigades of the division, perform unit level distribution of all classes of supply (except bulk Class III), and to provide

evacuation support. Back up support for the division will be provided by the CSB. The transportation assets of the corps transportation group are redistributed to the CSBs supporting the division.

Each CTC will receive 8 Heavy Equipment Transporters (HETs) for equipment evacuation from the combat trains back to the BSA. Currently, this mission is performed using HETs from the COSCOM. The division has 24 HETs under current authorizations. These are normally reserved to enhance the division's ability to move major weapons quickly. Each FSB will receive 8 of these HETs under the BDS.

The CTC is responsible for the movement of all supplies, less Class III bulk and Class VIII, forward in support of the brigade. The data presented in the CASCOM briefing indicates that there are two areas where transportation capability equal requirements.⁴ One area where capability matches requirements is ammunition resupply for the field artillery battalion. The second, is the supply company's ability to distribute bulk Class III to the entire brigade. The CASCOM briefing indicates that 41 Heavy Equipment Transport Trucks (HEMTT) are required to distribute ammunition to the brigade itself. Only 36 HEMTTs will be assigned to the CTC. The combat distribution concept hinges on short lines of communications. The HEMTTs are expected to

⁴Combined Arms Support Command briefing entitled "AirLand Operations CSS Concept", which is undated.

make 3 to 4 round trips to completely supply the brigade. This assumes that the distances between the dispersed units and the FSB will allow multiple trips, and it also demands that time be built in to the plan so that multiple trips can be made.

Assessment. Moving a Corps in Central Europe has primarily been restricted to short distances. Critical supplies have been prepositioned throughout the theater to support/ reduce the anticipated transportation requirements.

The movement of general supplies (Classes I, II, III package, IV, VI, and IX), under the new concept, can not be adequately calculated. The developers have recommended 10 5-ton stake and platform trucks for this mission. Here they have assumed that only Meals Ready to Eat (MREs) will be issued during combat operations. Movement of Class IX major assemblies forward to the combat maintenance company have not been addressed. This has routinely produced a transportation shortfall, under the transportation structure designed to support AirLand Battle doctrine. The requirement for the movement of soldiers killed in action (KIA), or who expire after arriving at a medical treatment facility, have not been fully addressed. These two problem areas have existed under the current transportation system.

Protecting the Force

Task. Rear operations are conducted in the rear area of the brigade, division, and corps. The purpose of rear operations are to:

- a. Secure the force.
- b. Neutralize or defeat enemy operations in the rear area.
- c. Ensure freedom of action in close and deep operations.

The goal of rear operations is to provide security of rear area facilities, installations, and forces to ensure unimpeded operations in the rear area. Doctrine for conducting rear operation focuses on avoidance, dispersion, self-defense, and mutual defense.⁴⁶

Condition. The rear operations officer at Echelons Above Division (EAD) is assisted by a Rear Area Operations Center (RAOC), or an individual staff element which serves as the command and control headquarters for rear operations. At division level and below, it is a function of the Rear Command Post (CP). Precautionary and response actions to enemy forces and activities in the rear areas are divided into three levels. The levels are based on the size of the element needed to defeat the threat to the rear area.⁴⁷ They are:

- a. Level I. Threats that can be defeated by base or

⁴⁶FM 100-10, Combat Service Support, 2-14.

⁴⁷FM 100-15, Corps Operations, 3-3.

base cluster self-defense measures.

b. Level II. Threats that are beyond base or base cluster defense capabilities; but are those which can be defeated by response forces, normally Military Police (MP) with supporting fires.

c. Level III. Threats that necessitate the command decision to commit a combined arms tactical combat force to defeat them.

Dependent upon the nature and size of the enemy threat to the rear area, three different types of forces may be employed. A base defense force is intended to defeat attacks by saboteurs, terrorists, and small special operations teams. If assistance is required to effectively engage the threat, then the Military Police Response Force is activated. The response force is intended to engage a Level II threat. They have the mission to: conduct aggressive patrolling and surveillance of avenues of approach, landing zones or drop zones; and to provide early warning of rear area enemy activity. Base defense and MP response forces, if unable to counter the enemy force, request assistance from the RAOC, or Rear CP. The RAOC/ Rear CP notifies the G3, and the Tactical Combat Force is activated. Once activated, the TCF commander assumes command of all elements countering the enemy in the area and reports directly to the corps/ division commander.¹¹

¹¹FM 63-3J, Combat Service Support Operations-Corps, 1-9 thru 1-13.

Assessment. Combat operations in defense of Central Europe posed a threat to rear area operations that is different from that which is to be expected under ALO. Although FM 100-5, discussed the impact of non-linear operations on sustainment operations, the primary threat to rear areas have been conventional Soviet Air Forces, special operations, airborne and air assault forces. Given the linear nature of the NATO defense plan, armor forces successfully penetrating the FLOT would be actively engaged. Logistics units at Corps and below are not necessarily an operational center of gravity, in the highly industrialized environment of Central Europe. While it is possible that these forces posed a threat to the brigade and division rear, the logistics center of gravity was not immediately threaten. This was true as long as the logistics center of gravity was not in close proximity to an enemy strategic or operational objective.

The nature of the battlefield under ALO affords a greater potential for an armor/ mechanized force to be able to directly threaten the division or corps rear. As mention previously, brigades and battalions may fight with units on their left and right flanks; but divisions or corps probably will not operate with units on theirs. Risks to the rear area are greatly increased. When U.S. forces deploy to immature theaters, the logistical structure is more likely to be an operational objective.

Command and Control (C¹)

Task. The objective of the command and control system is to allow friendly forces to act more rapidly than the enemy. According to FM 71-100, Division Operations, this keeps the enemy off balance by changing the situation so rapidly that his reactions are inappropriate and he remains at a disadvantage.⁴⁹ One of the most critical functions of CSS C¹ then, is to sustain the tempo set by the maneuver commander. Two elements of the C¹ have caused particular problems for the tactical logistics commander. These have been his inability to quickly develop and synchronize the concept of support for the division plan and his inability to direct or control the execution of that plan, once it has been developed.

Condition. Unlike the maneuver brigade commanders, the DISCOM commander's operations plan can best be developed only after each brigade has completed its mission analysis and developed a plan. The FSB commander, as the logistics planner for the brigade, develops a concept of support for the brigade plan. Sustainment operations are integrated into the brigade's synchronization matrix and logistics shortfalls are

⁴⁹FM 71-100, Division Operations, 3-1.

identified. It is at this point that a coherent DISCOM plan can be established. The DISCOM staff, based on the Division commanders's intent and priorities, can conduct the final coordination required to shift logistics assets to weight the battle.

The process of producing an operations order is often referred to as an orders drill. During the orders drill process, commanders normally seek to provide lower echelons 2/3 of the available planning time. This is extremely difficult for the DISCOM to do. Often, the support battalion's operational planners must physically convene at the DISCOM CP to finalize the logistics plan. Requirements, in excess of the division's capability can not be fully identified until this process is completed. This results in a delay in coordinating with the COSCOM for any additional assets.

Assessment. The orders process is extremely cumbersome. The division commanders ability to support his main effort is tied to this process. If it takes logistics planners an inordinate amount of time to change the plan, or shift support assets; then, the division commander will have difficulty getting inside the enemy's decision cycle. This has had, and will continue to have, a snow-balling effect. The corps' senior logistician, the COSCOM commander, will find it

difficult to synchronize fulfilling the corps' requirements, prior to the completion of the process.

A second deficient aspect of logistics C² is the ability of commanders to control the execution of the plan once it has been developed. CSS units are not authorized an amount of communications assets sufficient to put a radio with each critical subordinate element of the support battalion. These elements, then, do not have the ability to communicate with their company headquarters.

The requirement to perform unit distribution requirements and the number of CSS elements operating far forward under the ALO concept would suggest that this will become even more critical in the future.

Mobility

Task. AirLand Battle doctrine clearly established a requirement for units, up to corps size, to be able to move quickly on the battlefield. The concept of mass, concentrating friendly capabilities against enemy weaknesses, also is a statement of the requirement for the mobility of the corps.

Condition. The degree of mobility required by CSS units has been an issue, at least since the creation of the DISCOM

in 1965. Corps CSS units have remained relatively immobile. by design. FM 100-10. Combat Service Support states:

CSS units are not normally having to move as frequently, are only partially mobile, depending on transportation units to move them when they relocate.⁵⁰

This FM, subordinate to FM 100-5, relieves developers of CSS Tables of Organization and Equipment (TO&Es) from the requirement to provide the mobility required to move with the corps. Many elements of the COSCOM are significantly less than 50% mobile. The Combat Surgical and Evacuation hospitals are less than 35% mobile. Direct Support maintenance units of the COSCOM are designed to be 50% mobile. The maintenance companies of the Main Support Battalion are structured to be 80% mobile.

Assessment. The lack of CSS mobility appears inconsistent with the keystone doctrine. The realities of supporting combat operations in Central Europe have allowed logistics TO&E developers to reduce CSS mobility capabilities. In the fully mature German theater, combat units were expected to move no more than 100 to 150 meters during the course of offensive operations. This did not necessarily demand that CSS units make changes in their position. The limits set on operational maneuver by the requirements for the defense of

⁵⁰FM 100-10, Combat Service Support, 9-2.

Germany and the restoration of the IGB mitigated the demands for CSS mobility. Mobility, under the ALO concept, will be an essential capability for the entire force.

ALO stresses the requirement for the corps commander to seek to create opportunities to conduct operations over long distances. Based on the mobility of the existing logistics system, the combat elements of the corps can quickly out distance their support structure. Future operations in theaters that lack the infrastructure to provide large amounts of transportation augmentation are very likely, under the new concept. The inability of CSS units, operating in the corps area and below, to move their equipment and supplies with organic transportation assets will severely degrade the corps' ability to fight and win.

Review of the Sustainment Functional Analysis Methodology.

The analysis of the sustainment functions has attempted to answer four questions. One, did the established structure and procedures accomplish the objectives and intent of AirLand Battle doctrine? Two, were there gaps between what was required and what was possible? Three, will the new structure and procedures support the objectives and intent of the AirLand Operations concept? Four, will the deficiencies of the existing systems influence how well the new system

supports the concept? These four questions are linked: their linkage is caused by the fact that both the concept and its supporting sustainment structure build upon what currently exists. In some cases, the proposed sustainment structure, and the procedures that will accompany it, improve deficiencies that existed under AirLand Battle doctrine. In every case, the existing structure has at least been modified.

From this prospective, the approach to answering these four questions has been to evaluate how well existing sustainment doctrine supports AirLand Battle, and then evaluate the proposed modifications against the new concept. The idea has been to evaluate the sustainment system, as it was designed to function, and not how well the Army has executed the system. In some cases problems in execution, caused by flaws built into the system, have been highlighted.

Collectively, the eight sustainment functions that have been evaluated are critical to successful sustainment of AirLand Battle doctrine. They are interdependent functions that must be skillfully worked and orchestrated to produce and sustain a combat effective force. A weakness in any one function seriously hinders the effective operation of the others.

Logistics Functional Area Evaluation.⁵¹

Sustainment in AirLand Battle.

The logistics system operating in support of AirLand Battle doctrine does not provide the range of capabilities that the doctrine demands. Of the eight areas addressed in the study, four have systemic flaws that prevent them from being effectively executed (fueling, fixing, command and control, and mobility) and have been rated as (-). Two functions possess capabilities that have exceeded the demands of the current doctrine (sustaining the soldier and arming) and have been rated as (+). The capabilities of the remaining two functions (moving and protecting the force) appear to meet the demands of the current doctrine and received a rating of (=).

The sustain the soldier function exceeded the ALB demands primarily because of its health service component. The modularity of health services provided the flexibility, at the tactical level, to keep critical life sustaining capability far forward on the battlefield. Additionally, the built-in redundancy of the system allows health service

⁵¹A summary of the results of the evaluation is presented in the Assessment Table found on page 87.

managers the ability to back up or replace assets destroyed anywhere forward of the division rear boundary.

The ability of the transportation system to move the corps has been tied to the distances associated with the defense of Central Europe. In this environment, the capability to move the corps needed only to match the requirements of short hauling supplies in defense of the Fulda gap.

The sustainment function of fueling received a (-) rating because of the inherent shortfall in the hauling capacity of the system. Dispersion, mass, concentration of forces, and synchronization are sub-elements of the Airland Battle tenet of agility. The Army, according to FM 100-5, had to possess agility in its ability to think and act. These requirements were not limited to divisional forces, but had to be incorporated into forces as large as the corps. The idea being that the corps was the largest organization that could be given a tactical mission. The limiting factor of the Army's fueling system is its distribution capacity. Sustainment planners can easily establish storage sites as far forward as needed. These sites cut down on the distance tankers must travel to get resupplied; and they improve the system's ability to accomplish the short haul requirements of defensive operations, but do little to sustain the offense.

Fixing was rated (-) because the doctrine was never executable, given the force structure that was fielded to

support it. While the doctrine called for a "fix forward" approach to battlefield maintenance, the structure did not provide the mobility for it to be achieved. The fixing system was also designed without the flexibility to accommodate the manner in which the force was most likely to operate, that is in task force configuration. A maneuver battalion, task organized for battle, can be supported only with great difficulty. "Friction", as described by FM 100-5, was built in. It is very difficult for the automation system supporting Class IX operations to handle the establishment of a task force, or the attachment of a maneuver company/battalion to a different parent headquarters. Likewise, the SST can be reconfigured to support a task force, only with a fair amount of difficulty. Tools and test equipment, as well as the number of soldiers with key skills, are not authorized on the SST in sufficient numbers.

Command and Control was rated as (-) because the order process is too cumbersome, as well as the inability of logistics commanders to communicate with critical subordinate elements. Analysis of the tremendous effort required to plan and execute sustainment operations on the battlefield was not thoroughly done. Planning and coordinating sustainment operations must be accomplished within the tactical or operational planning cycle. If the combat commander can synchronize the other battlefield operating systems (Intelligence: Fires: Maneuver: Mobility/ Countermobility:

Command and Control: and Air Defense Artillery) before his sustainment planned is completed, then he loses the ability to get inside the enemy's decision cycle. Sustainment planning is far too cumbersome. The point here, is that there is a need for a system that allows logistics plans to be coordinated more quickly.

Communications, within the sustainment system is both cumbersome and restrictive. Examples of the logistics commander's inability to communicate and direct sustainment operations are readily available. Two will be given here. The first, deals with POL distribution and the second has to do with MST operations.

The supply company commander can not communicate with his 5,000 gallon tankers, once they have deployed on a mission: they do not carry and are not authorized radios. If the situation changes, or the POL supervisor requires additional assistance, the assets are not available for him to communicate this to his commander.

One of the fundamental reasons for MSTs not being used in the manner called for in maintenance doctrine has been their inability to communicate with their base company. Doctrine intended for the MST to diagnose/ troubleshoot deadlined equipment. MSTs were expected to go anywhere on the battlefield. The number of MSTs was only limited by the number of people, vehicles and test equipment assigned to the company. If, after completing a diagnosis of a deadlined

system. additional tools and test equipment or repair parts were required beyond what was carried with the team, they were expected to be communicated to the Shop Officer. This could not be done, given that there wasn't a radio authorized for any of the vehicles assigned to the SST.

The rating of mobility as a (-) is based on the inability of CSS units, at corps and below, to move as far and as swiftly as the maneuver units they support. The corps can't mass and shift direction, if the COSCOM can't move. As the quotation from FM 100-10 would indicate, CSS doctrinal developers did not design a structure with the mobility required by the keystone doctrine. Because of this, logistics doctrine remained grid-locked in the same mentality that produced the Red Ball Express.⁵¹

Sustainment in AirLand Operations.

The objective of the logistics system under the new concept is to sustain the operational tempo/ maneuver of a globally deployable combat forces. The size of the force will be tailored to the particular mission and the nature of the conflict, which is likely to be in the form of a regional

⁵¹The Red Ball Express was a supply distribution network established during World War II to move supplies from the coast of France to units fighting in Germany. Many of the vehicles used to transport supplies were obtained by standing down combat units arriving in the Theater of Operations and transferring their vehicles to this operation.

threat. The expectations of the sustainment system under the new concept are to:

1. Reduce the logistics burden.
2. Recorient the sustainment system to provide scheduled, combat configured supplies, directly to maneuver units.
3. Protect the system from interdiction.

The capabilities of the proposed sustainment structure to meet these demands are not sufficiently enhanced to accomplish the intent of the AirLand Operations concept. Only the manning function is likely to be capable of accommodating the dynamics of the future battlefield. The structures to support arming, moving, and protecting the force, do not provide the capabilities needed to handle the most likely requirements. The capabilities of the fueling, fixing, command and control, and mobility functions are even further degraded under the proposed system. These functions can not accommodate the potential demand of distributing supplies to nine different combat trains locations, (nine represents the minimum number of separate locations: the concept also demands that supplies be delivered to key weapon systems).

The distribution problem associated with fueling and arming under ALB is exacerbated under ALO. Both functions received a (-) rating. An additional reason for the arming rating is that the capabilities provided under ALO do not meet the requirements of preparing combat configured loads. Combat

configured loads must be prepared. over a sustained period of time. and then must be moved to multiple forward locations.

Fixing was given a (-) rating because of its dependency on the fielding of the RRV and The AMV to be successful. Neither systems appears to be approaching the point where they might receive fielding appropriations. The second reason for this system receiving its rating relates to the proposed equipment evacuation system. While eight HETs may have been sufficient to handle the evacuation demands of the mobile defense of Fulda, they are not likely to be sufficient to handle the requirements of forces operating over operational distances. Especially, when the operational distance is in a theater with a limited road network.

The moving functional area received a (-) rating. The amount of transportation assets in the corps have not been increased to accommodate the demand for supplying and moving a corps attempting to operate over long distances.

Protecting the force received a rating of (-) due to the increased demands of protecting the rear area and the accompanying streamlining of the maneuver forces available in a theater of operations. The combat forces are less likely to be able to respond to a rear area threat. This demands that CSS units be better organized to handle their own defense. The current ability of CSS units to defend themselves, because of personnel reductions, is already extremely limited.

C¹ was rated as deficient because the difficulties of preparing and executing plans will be exacerbated under this concept. Communications in an immature theater, and the absolute necessity for decentralized execution of logistics operations, demand that CSS commanders be able to talk to their subordinates.

The (-) rating for mobility is driven by the fact that the mobility of the corps, already poor, has been decreased. The drain of transportation assets required to move CSS elements, which will increase due to the decreased mobility of the COSCOM, reduces the corps' ability to move and sustain itself.

The table below capsulizes the summary of the sustainment functional ratings.

ASSESSMENT TABLE

Sustainment Function	AirLand Battle	AirLand Operations
Sustaining the soldier	+	+
Arming	+	-
Fueling	-	-
Fixing	-	-
Moving	=	-
Protecting the force	=	-
Command & Control	-	-
Mobility	-	-

CHAPTER V

CONCLUSIONS

The inability of the sustainment system to fulfill the expectations of the Army's keystone doctrine did not occur by accident. It also occurred without "malice of forethought" or premeditation. Yet, it has occurred none the less.

So, how can a sophisticated Army with the ability to "intelligently ride the surf", as Michael Howard described, find itself in such a predicament?

The nucleus of the answer can be found in the preface to FM 100-5. The opening paragraph begins:

FM 100-5, Operations, is the Army's keystone warfighting manual. It explains how Army forces plan and conduct campaigns, major operations, battles, and engagements in conjunction with other services and allied forces. It furnishes the authoritative foundation for subordinate doctrine, force design, materiel acquisition, professional education, and individual and unit training.⁵²

AirLand Battle doctrine is the: "...authoritative foundation for subordinate doctrine, force design, and materiel acquisition." A review of the Assessment Table in chapter 4 reveals that this did not occur. Of the eight criteria used to assess the logistics doctrine and force structure supporting AirLand Battle doctrine, four of them possessed

⁵²FM 100-5, Operations, i.

shortcomings that prevented them from providing the capability required by the keystone doctrine.

With the added requirements anticipated under AirLand Operations, the Assessment Table shows that only the sustain the soldier function is sufficiently robust enough to accommodate the demands of the new concept. Within the three subfunctions of sustain the soldier, which are: personnel services, field services, and health services, it is only in the health services area that any real increase in capability can be seen.

Conclusions At the Strategic/ Operational Levels.

The evolution and development of doctrine is similar to a river. It has a very natural course that it takes. If it is prevented from following its natural path at any point along its course, the outcome is drastically different. In the case of Army doctrine, the start point is the assessment of the nation's goals and objectives. The next point along its course to an Army doctrine is a determination of what the nation's interests are and an assessment of the threats to achieving them. From this threat assessment, a strategy is developed to protect these interests: this then, leads to the

strategy for achieving the national objectives. One element of the nations' strategy to protect its interests is the national military strategy. The national military strategy is, in part, an identification of the requirements the military must meet to successfully protect our interests. The senior leadership of the Army develops the Army portion of the national military strategy into a statement of requirements. Army doctrine, for the last fifty years, has been a description of the capabilities necessary to be successful on future battlefields. Such has been the case for AirLand Battle doctrine; and it will be the case for the AirLand Operations concept.

The remainder of the path to a total doctrine, that if properly executed will counter the threats to our nation's interests, was spelled out in the preface to FM 100-5. From the doctrine expressed on the pages of this one FM should flow the development of the subordinate doctrines, force structure, and materiel acquisitions required for its execution. The natural course of the evolution of doctrine should run from the development of a keystone doctrine; through the development of subordinate doctrines, to the development of a force structure that can successfully execute the keystone doctrine. Materiel acquisition is driven by the needs statements that are generated by the development of both the keystone doctrine and the doctrines subordinate to support it.

The development of a sustainment system that could support the base doctrine was thwarted in each of the three doctrinal subelements. The end result, if uncorrected, will be that the extension of Army doctrine in to AirLand Operations (if it is adopted as doctrine) will exacerbate the failures of sustainment doctrine under AirLand Battle.

In the case of AirLand Battle, the process was dammed with the establishment of a force structure that would not allow the keystone doctrine to execute the intent of its creators. The developers of sustainment doctrine, already aware of the impending reductions in the Army strength, attempted to create a doctrine that would operate within the resource constraints imposed upon the Army at the time of its development. Materiel procurement and acquisition were, and still are, tied more to the politically popular systems than to the requirements of a total force.

Looking at each of these allegations in turn, the discussion will begin with the force structure. A discussion of the development of the subordinate doctrine of sustainment will follow. The chapter will conclude with a few comments on materiel acquisition.

Force Structure Development.

AirLand Battle doctrine and the AirLand Operations concept were developed in a constraint free environment.

Doctrinal developers have sought to identify the critical requirements the Army had to meet to be successful. At the time this occurred (from 1976 to 1982), as is the case today, the Army was facing a reduction in force. The strength reduction prior to the establishment of AirLand Battle as the keystone doctrine was not as extreme as the one that is going on now; this reduction is occurring simultaneous with the Army's attempt to extend AirLand Battle.

Clausewitz postulated that: "...war is not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on with other means."⁵³ Most who recognize the Army as an instrument of war, understand that this is quite true. They would also recognize that in this country, this is by designed: and it is written in to the nation's constitution. It should not come as a surprise that the Army is both an instrument of politics and influenced internally by the political climate at any given time. The ebb and flow of the political tide often produces a requirement for change in the military, while simultaneously denying it the full range of resources to properly accommodate the change.

In 1960, the Army's "surf riders", developed the Pentomic Division. This was the solution to the challenges of the nuclear battlefield. However, the fielding of the 101st

⁵³Carl von Clausewitz, *On War*, Edited and translated by Michael Howard and Peter Paret, (Princeton: Princeton University Press, 1976; Princeton University Press 1989), 87.

Airborne/ Air Assault division in 1960 was accompanied with a reduction in force. As described earlier, the reduction rendered the pentomic division useless. The search for a solution to the predicament the Army found itself in at the conclusion of Vietnam produced, at least at first, the concept of the Active Defense. This grew into AirLand Battle. The post Vietnam political environment, however, was not one that encouraged the growth of the military. It had been pre-ordained that the Army would be reduced following the war; this occurred simultaneously with the fielding of the new doctrine.

In the August 1991 issue of *Military Review*, Colonel Lewis Jeffries advocated what would be a solution to the problem of establishing a doctrine, and a force structure to support it, under the changing tide of politics. In his article, he called for a doctrine for force design. He said:

...The design of our forces, therefore, is a critical element of building and preparing our forces for combat. A flawed organizational structure with an inadequate TOE places the unit at a disadvantage even before the first shot is fired.⁴

Col Jerries' article went on to say:

Force design doctrine, on the other hand guided the process for designing those forces. Just as our AirLand Battle doctrine provided the blueprint for success in the Gulf War and AirLand Operations doctrine will guide our training and education for future employments, a force design doctrine must be the bedrock of our design efforts in this time of

⁴Col Lewis I. Jeffries, "A Blueprint for Force Design," *Military Review* (August 1991), 20.

change and restructuring. That doctrine should establish a set of theoretical principles used as a foundation for conducting force design just like the principles of war provide the foundation for conducting military operations. Without these principles, the whole process evolves into a personality driven system."

The political and military personalities influencing decisions at the time AirLand Battle was fielded, saw the reduction of the size of the active duty logistics forces as more desirable than a reduction across the board. This reduction of the "tooth-to-tail" ratio, and the ensuing risks, were acceptable given the chief threat to NATO at the time and the state of logistical developments in the primary theater of operations. Europe, after all, was a mature theater with prepositioned stocks, an active US depot, and forward deployed forces. It was this mind-set that developers of logistical doctrine had when they began the task of creating a doctrine for sustaining AirLand Battle.

Subordinate Doctrine.

The 1986 edition of FM 100-5 described the capabilities the Army had to possess to be successful against

⁵⁵Ibid., 21.

the primary threat to the national interests. Sustainment doctrinal developers had to dissect this vision of the Army, and they had to develop a description of the capabilities needed to support the base doctrine. Chapter 4 of FM 100-5. Sustainment, Planning and Execution introduces the discussion of the sustainment challenges thusly:

At the tactical level, a unit's flexibility, its ability to maneuver or to mass fires extensively, and its capacity for prolonged operations and operations in depth will all rely on its sustainment system. The differences in firepower, agility, and endurance which can decide battles all derive as much from the combat service support system as they do from any of the other systems that support fighting forces."

The introduction goes on to say:

To realize their units' full potential commanders must support their operations with rugged, flexible, self-sufficient combat service support forces."

Evident in these passages are the requirements that the sustainment system be able to support an agile force, attempting to mass fires and units over operational distances. AirLand Battle doctrine, just as the AirLand Operations concept, posed these requirements for an Army that had to be globally deployable. Unfortunately, the sustainment piece has been landlocked in the Central European mind-set. The clearest evidence of this can be found in this passage from FM 100-10:

"Ibid.. 4.

"Ibid.

CSS units not normally having to move as frequently, are only partially mobile, depending on transportation units to move them when they relocate."

The non-linear battlefield of Central Europe, along with NATO's strategic position of being the defender, engendered an environment where large unit movements over long distances would not be likely. The COSCOMs of V and VII corps could support the GDP of the Central Army Group (CENTAG), without having to displace from homestation. Just as the idea of limited war caught the Army of the 50's and 60's ill-prepared, large scale combat operations outside of Europe were, up until recently, also believed to be unlikely.

With a restrictive force structure and a sustainment doctrine designed for Europe, the Army's logisticians have attempted to acquire the material means to support a highly technical, extremely mobile and powerful combat force. Materiel acquisition of systems needed to sustain combat units has seriously lagged behind the acquisition of other systems.

Acquisition.

This discussion can be initiated with listing two systems: the fielding of which, or lack of fielding, exemplify

"FM 100-10. Combat Service Support. 9-2.

the problem of materiel acquisitions. Others could be selected just as easily. The examples selected are: the Armored Maintenance Vehicle and the Heavy Equipment Transporter.

Maintenance units in the early 80s were positively exuberant over the fielding of the mobile contact truck. The truck allowed two mechanics with their tool boxes and test equipment to move around the battlefield. When the Army shifted to AirLand Battle, the concept of "fix forward" was incorporated into Army doctrine. Maintenance Support Teams were created to move as far forward as a down weapon system. DS maintenance was expected to occur as far forward as one terrain feature behind the FLOT.⁹⁹ This then, was the genesis of the need statement for the AMV. The AMV was intended to be the means of transportation for the MST as it moved forward on the battlefield. The contact truck of the early 80's was soft skinned. It, and the crew, could be easily destroyed operating within 5 kilometers of the FLOT. The AMV, developed as a prototype as early as 1984 was field tested during Return of Forces to Europe (REFORGER) 1988; it is still not in the Army inventory. The Abrams tank, the M1, was the experimental M1 or XM1 in 1977. It was initially fielded in 1983, with units in Germany finally receiving it in 1989. The M1 is significantly heavier than its predecessor the M60. The Army's main battle tank can only be transported on the current

⁹⁹FM 71-100. Division Operations, 2-16.

Heavy Equipment Transporter with great care. The need for a new equipment transporter has been existence since the test of the XM1 in the 1970's.

Conclusions At the Operational/ Tactical Levels.

SST Operations.

The MST was not employed in the manner originally intended. The primary reasons for this were:

a. Once the mission was received at the DS maintenance company, the MST lacked the transportation capability to move forward. Neither a sizeable team, sufficient test equipment, nor adequate repair parts could be readily moved forward.

b. The MST, moving from the BSA, was already out of position. The time required to move from the BSA to the down site, or the combat trains was unacceptable.

c. Once the MST was forward, it often lacked adequate lift capability to complete the repair task.

d. Communications between the team and the base company were not possible. The team could not communicate any additional maintenance or CL IX requirements detected during

fault isolation. This meant that maintenance operations were limited to whatever the team could load in a vehicle. Inadequate communications also meant that the Shop Officer could not re-direct the maintenance team from one location to another. Frequently, the team would complete a mission and return to the company to find that they were needed forward again.

The soft skinned contact truck offered little protection on the battlefield. Repairmen were perceived to be vulnerable to move as far forward as the doctrine required.

For all of these reasons, the entire SST routinely moved in with the battalion it was designed to support. The BMS relies heavily on the Armored Maintenance Vehicle (AMV) to solve all of these problems. This vehicle was tested at Aberdeen Proving Grounds Maryland as early as 1985, but has not yet been fielded.

Conclusions: A Summary.

These then, are the reasons and causes for the sustainment system's inability to properly support AirLand

Battle doctrine. The relationship between AirLand Battle doctrine and the AirLand Operations concept is that of a building. AirLand Battle is the foundation upon which the AirLand Operations concept will carry the Army in to the year 2000. The developers of logistics doctrine have also sought to build on its AirLand Battle foundation. That foundation, however, is and weak.

The end of the cold war, new technologies, a new domestic agenda have all coalesced to yield a new military strategy. The AirLand Operations concept, if adopted, will hopefully provide the direction the Army must take as it moves in to the future. Sustainment doctrine, mired in the distant past, must play catch up. Developers of today's logistics system must start with a clean sheet, much like the developers of the ALO concept. The developers of the logistics piece to the ALO concept must begin the process without thinking of the resource constraints facing the Army. They must study the base concept and identify the force needed to sustained it. They must clearly identify the requirements of a sustainment system strong and flexible enough to achieve the intent of the doctrine it dares to support. This has not happened in the past. If we are to be successful in the future, it must happen and happen now.

Areas for Further Study.

This study, of the development of Army doctrine and the logistics doctrine that supports it, has revealed three areas that deserve further study. They areas follows:

a. Is there a need for the Army to develop a doctrine to guide the process that produces its force structure. The process used to develop the size of the combat force is driven by input from theater commanders; the system to develop the number of CSS soldiers is driven by computer simulations. The two approaches may not be the best for developing a balanced force.

b. Do the battle simulations, use to verify the adequacy of emerging doctrinal concepts and force structure adequately replicate CSS demands and capabilities. The battle simulations used to train corps and division commander do not replicate actual logistics operations or procedures. Could it be that the verification of the adequacy of Army doctrine is limited to combat systems.

c. Is there a more equitable way to prioritized the systems and technologies that will be developed and procured to support the demands of Army doctrine. Is it likely that procurement, in a time of reduced defense spending, of the low

visibility CSS systems will be able to compete with the high visibility combat systems? Can there be a balanced force if this doesn't occur.

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